## KEY TO THE WORLD GENERA OF LARINAE (COLEOPTERA, DRYOPOIDEA, ELMIDAE), WITH DESCRIPTIONS OF NEW GENERA FROM HISPANIOLA, COLOMBIA, AUSTRALIA, AND NEW GUINEA

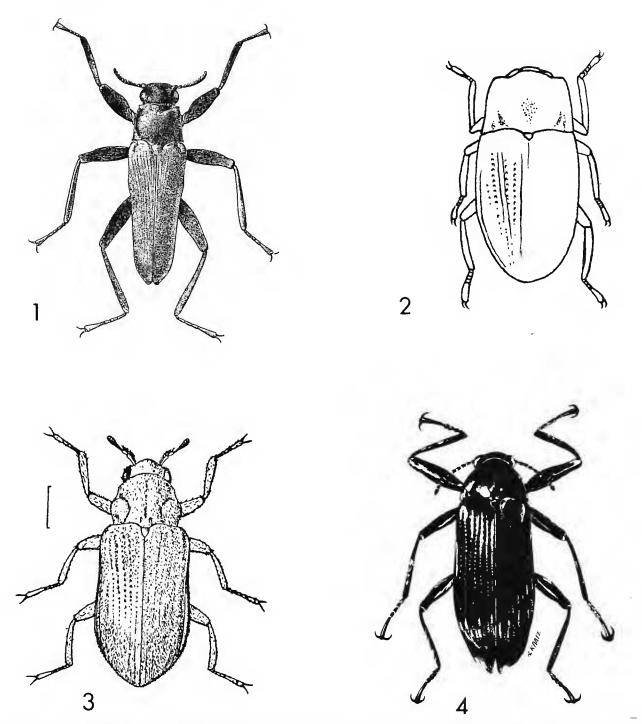
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The most recent attempt to construct a key to the world genera of Larinae or Larini (he considered them but a tribe) is that of Hinton (1940). His key included 11 genera. Since that time, Delève (1963) has described the genus Potamolatres based upon a new African species, resurrected Potamocares Grouvelle (1920) and placed in it some of the African species considered Hydrethus by Hinton (1937), erected the genus Potamogethes for the remaining African species formerly placed in Hydrethus, and erected the genus Omotonus for the African species previously in Potamophilinus. Delève (1967) also noted that Freyiella Bollow (1938) was synonymous with Potamophilinus. Freyiella had not been included in Hinton's key anyway, perhaps because of the wartime delay in publication or distribution of Bollow's paper. Hinton also omitted Potamophilops from his key, but stated that it would run to Hexanchorus, with which he thought it was probably synonymous. (He had not seen the wing venation or the distinctive larva.) The keys of Coquérel (1851), Grouvelle (1896), and Delève (1963), though limited in coverage, are all of value. It was Coquérel's key that gave me the clue to the existence of one of the new genera described below (Pseudodisersus). A second new genus (Ovolara) came to light because of biogeographical probability: it seemed unlikely that the genus Hydrethus would be restricted to Madagascar and Australia; furthermore, the fact that one Australian species was initially described in the genus *Lutrochus*, which is very different from most Larinae, made me very suspicious of its generic designation. The aedeagus figured by Satô (1973) for beetles he thought to be Potamophilus papuanus (Carter) was sufficiently different from that of other species of *Potamophilus* to lead me to guess that it represented a new genus. The impetus for the construction of a key came from my discovery of the new genus Hispaniolara and the necessity to describe it in relation to all other known genera. Since the literature is so scattered and illustrations so hard to find, I am taking the liberty of reproducing a number of figures which should be helpful to the reader in addition to my own drawings.

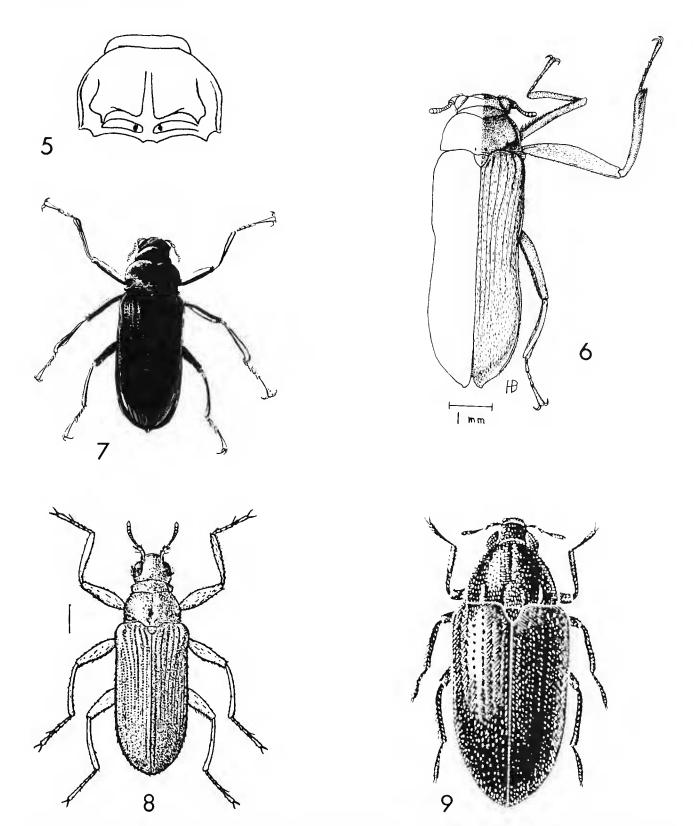
## Key to World Genera of Larinae

1.	Each elytron with 2 accessory striae at base between sutural and second stria; prosternum broadly truncate or feebly rounded posteriorly (Figs. 1, 14)
1a.	(Africa, Madagascar) (35 spp.) <i>Potamodytes</i> Grouvelle 1896 Each elytron with only one accessory basal stria or none between sutural and second stria; prosternum tapering to a subacute apex
2 (1a). 2a. 3 (2).	Elytra with no accessory basal striae3Each elytron with one accessory basal stria9Pronotum on each side with a longitudinal carina or sulcus
3a. 4 (3).	on basal third
4a.	coxae (Fig. 2)
5 (3a).	Indies, Central America to Texas) (7 spp.) <i>Phanocerus</i> Sharp 1882 Pronotum without transverse impression (Figs. 4, 16) (Costa Rica to Ecuador) (2 spp.) <i>Disersus</i> Sharp 1882
5a.	Pronotum with a distinct transverse impression in ante- rior third
6 (5a).	Pronotum with a deep, median, longitudinal impression from base to transverse impression and with posterior angles bi- dentate (Figs. 5, 61–64)
6a.	Pronotum without such a median longitudinal impression and with posterior angles simple
7 (6a).	Middle femur longer than body width (Figs. 6, 17, 49–57) (West Indies: Hispaniola) (1 sp.) <i>Hispaniolara</i> , new genus
7a. 8 (7a).	Middle femur shorter than maximum body width
8a.	Hind wing without a closed anal cell; smaller, less than 5 mm long (Figs. 8, 19) (South America, Cen- tral America, Lesser Antilles) (7 spp.) <i>Hexanchorus</i> Sharp 1882
9 (2a).	Pronotum on each side with a sublateral longitudinal carina or sulcus on at least basal fifth

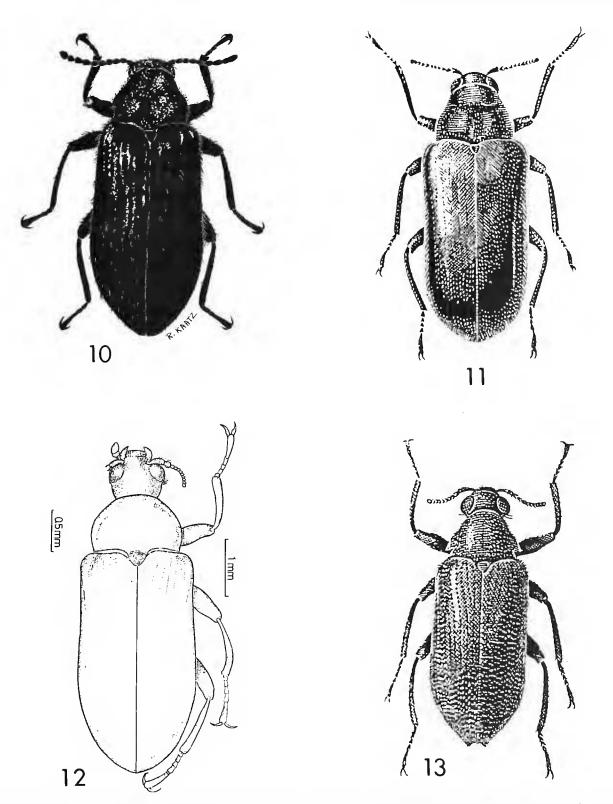


Figs. 1-4. Fig. 1. Potamodytes ochus, 7.5 mm. (From Hinton, 1948, Fig. 12.) Fig. 2. Dryopomorphus nakanei, 3 mm. (Drawn from photograph by Nomura, 1958, Pl. I, Fig. 4.) Fig. 3. Phanocerus clavicornis, 2-3 mm. (From Hinton, 1940, Fig. 56.) Fig. 4. Disersus longipennis, 8.5 mm. (From painting by Ramona Kaatz of specimen from near Buenos Aires, Costa Rica.)

9a.	Pronotum without basal carinae or sulci
10 (9).	Body oval or elliptical; antennal club compact; prosternum
	with anterior margin produced (Figs. 9, 20, 27, 29, 58)
	(Australia) (2 spp.) Ovolara, new genus
10a.	Body elongate; antennal club not compact; prosternum with anterior margin not produced (Figs. 21, 28, 30)
	(New Zealand, Australia) (8 spp.— additional species
	from Chile are being described elsewhere) Hydora Broun 1882

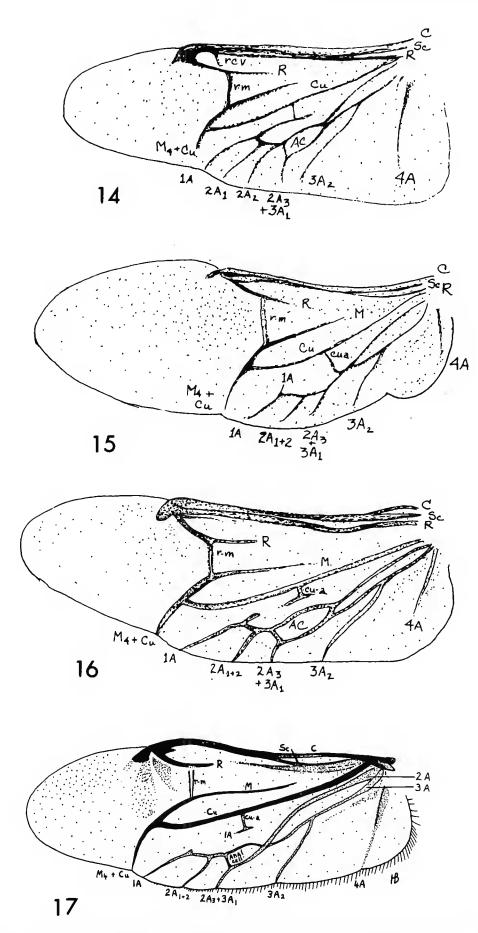


Figs. 5–9. Fig. 5. *Pseudodisersus goudotii*, 7 mm. Pronotum. (From Coquérel, 1851, Pl. 15, Fig. 10.) Fig. 6. *Hispaniolara farri* n. sp., 6.75 mm. Fig. 7. *Potamophilops* sp., 6.5 mm. (From painting by Mary Catron of specimen from Estreito, Maranhão, Brazil.) Fig. 8. *Hexanchorus gracilipes*, 3.5–4.0 mm. (From Hinton, 1940, Fig. 20.) Fig. 9. *Ovolara australis*, 3.5 mm. (From Carter and Zeck, 1929, Pl. III, Fig. 17.)

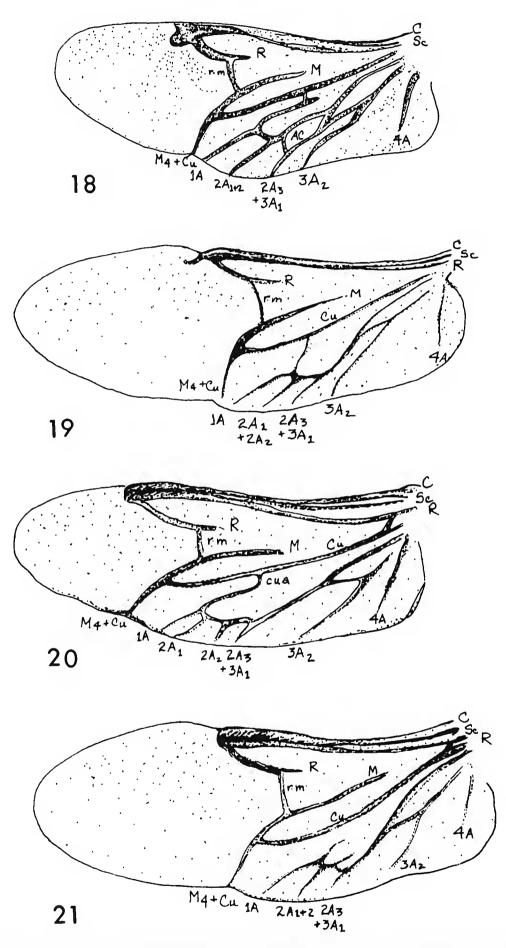


Figs. 10–13. Fig. 10. Lara avara, 7.5 mm. (From painting by Ramona Kaatz of specimen from Latah Co., Idaho.) Fig. 11. Stetholus elongatus, 5.3–6.0 mm. (From Carter and Zeck, 1929, Pl. II, Fig. 16.) Fig. 12. Potamogethes sp., 5.3 mm. (From Delève, 1966, Fig. 5.) Fig. 13. Potamophilus papuanus, 6–7 mm. (From Carter, 1930, Pl. IV, Fig. 1.)

11(9a).	Pronotum with rugosities (wrinkles); large (over 6 mm long) (Madagascar) (1 sp.) <i>Potamolatres</i> Delève 1963
11a. 12(11a).	Pronotum without rugosities
12(11a).	
12a.	Hind wing without a radial cross-vein
13(12a).	Hind wing with veins $2A_1$ and $2A_2$ separate and distinct (Figs.
	24–26)
13a.	Wing with veins $2A_1$ fused with $2A_2$ (= vein $2A_{1+2}$ in Fig. 23)
$14(12_{0})$	A adaptus with basel misse greatly reduced less then one
14(13a).	Aedeagus with basal piece greatly reduced, less than one fourth as long as penis (Fig. 31)
14a.	Aedeagus with basal piece rather well-developed, at least one
1 <del>4</del> a.	third as long as penis (Fig. 35)
15(14).	Elytra with humeri prominent and projecting; striae feeble,
15(17).	effaced in scutellar region; prosternal process with sides sub-
	parallel in basal two-thirds (Figs. 23, 32, 34)
15a.	Elytra with humeri not projecting; striae distinct, accessory
154.	striae always visible; prosternal process subtriangular or ta-
	pering from base (Figs. 12, 33, wing venation as in Fig. 23)
	(Africa) (4 spp.) <i>Potamogethes</i> Delève 1963
16(14a)	Abdominal segments subequal (wing venation as in
	Fig. 23) (Madagascar) (3 spp.) Hydrethus Fairmaire 1889
16a.	Abdominal segments $1+2$ conspicuously longer than $3+4+5$
	(Figs. 35, 36, 41) (Southeast
17(10)	Asia, East Indies) (11 spp.) Potamophilinus Grouvelle 1896
17(13).	Pronotum bilobed, with anterior lobe more convex and sep-
	arated from posterior lobe by a shallow V-shaped depression;
	hind wing with vein $3A_1$ joining 2A proximal to closed anal
	cell (Figs. 11, 24)
17.	(Australia) (1 sp.) Stetholus Carter and Zeck 1929
17a.	Pronotum not bilobed; hind wing with vein $3A_1$ joining 2A at
$18(17_{0})$	or along margin of the closed anal cell (Figs. 25, 26) 18 Proportium evenly convey with lateral marging reflected up
18(17a).	Pronotum evenly convex, with lateral margins reflected up-
	ward and resembling a gutter (Figs. 25, 31)
18a.	Pronotum not evenly convex; with distinct impressions; lat-
10a.	eral margins not gutter-like
19(18a).	
17(10a).	parameters not fused basally and with both tapering conspic-
	uously from base toward apex (Figs. 13, 26, 37, 39, 42, 43,
	59, 60)
	(Europe to East Indies) (5 spp.) <i>Potamophilus</i> Germar 1811
	···· (Surope to Subt mate) (S opp.) i diamophina Oermai 1011

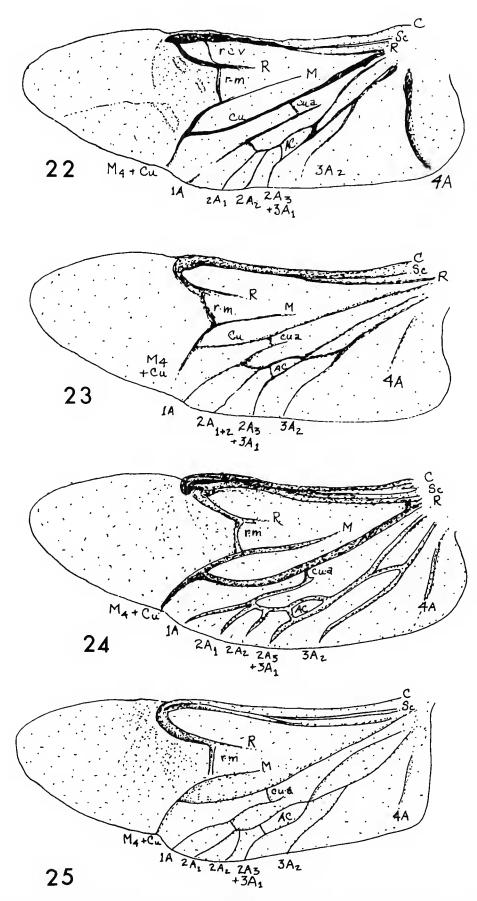


Figs. 14–17. Fig. 14. Potamodytes tuberosus, venation of wing, after Forbes (1926). (From Hinton, 1940, Fig. 4.) Fig. 15. Phanocerus clavicornis, wing. (From Hinton, 1940, Fig. 57.) Fig. 16. Disersus longipennis, wing. Fig. 17. Hispaniolara farri n. sp., wing. Like Disersus, but with 2A joining 3A before dividing.

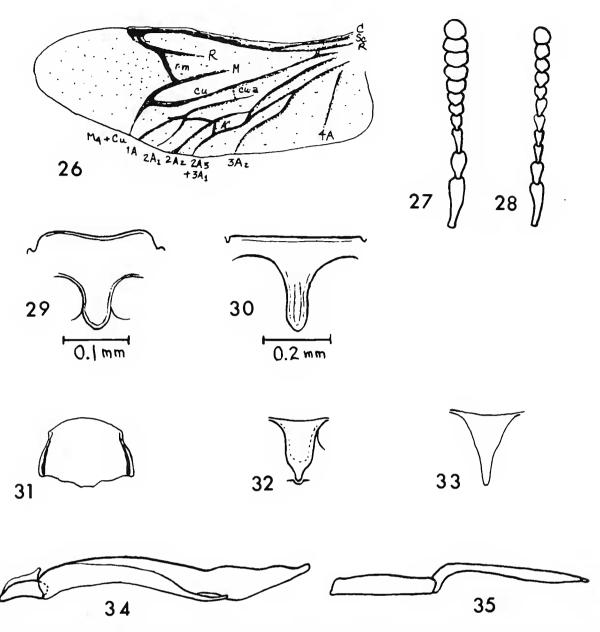


Figs. 18–21. Fig. 18. Potamophilops sp., wing. AC = closed anal cell. Like Disersus but with 1A more complete. Fig. 19. Hexanchorus gracilipes, wing. (From Hinton, 1940, Fig. 12.) Fig. 20. Ovolara australis, wing. Fig. 21. Hydora sp., wing. Differs from Ovolara chiefly in having veins 2A<sub>1</sub> and 2A<sub>2</sub> fused (?), so that only one vein occurs between 1A and 2A<sub>3</sub>+3A<sub>1</sub>.

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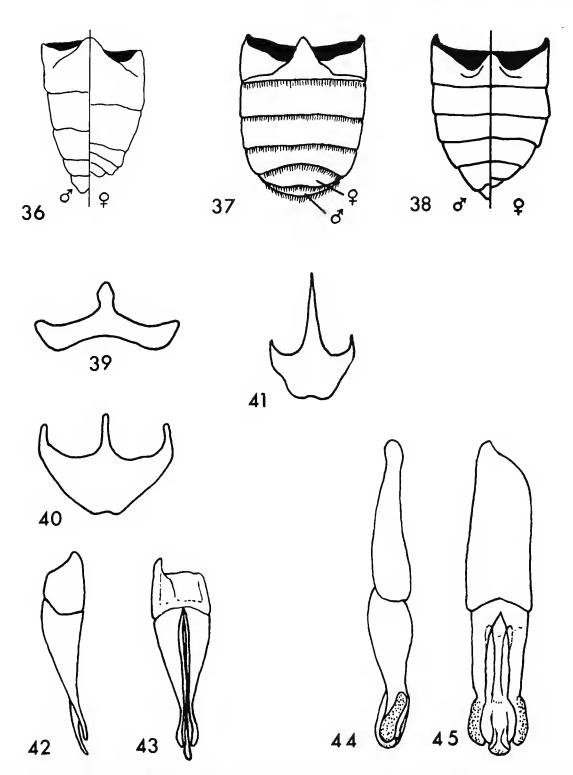
Figs. 22-25. Fig. 22. Lara avara, wing; rc-v = radial cross-vein. (From Hinton, 1940, Fig. 1.) Fig. 23. Omotonus notabilis, wing. Venation is essentially similar in Hydrethus, Potamogethes, and Potamophilinus. (From Delève, 1963, Fig. 28.) Fig. 24. Stetholus elongatus, wing. Vein 3A<sub>1</sub> joins 2A before it divides. Fig. 25. Potamocares burgeoni, wing. (From Delève, 1963, Fig. 31. In the caption to Delève's figures, this one is labeled Hydrethus proximus, but his discussion on p. 445 makes it evident that his Figs. 30 and 31 were inadvertently reversed. The venation of Hydrethus is essentially like that shown in Fig. 23.)



Figs. 26–35. Fig. 26. Potamophilus acuminatus, wing. The venation of Parapotamophilus n. g. is approximately the same as this. (From Hinton, 1940, Fig. 2.) Fig. 27. Ovolara australis, antenna. Fig. 28. Hydora obsoleta, antenna. Fig. 29. Ovolara australis, prosternum. Fig. 30. Hydora picea, prosternum. Fig. 31. Potamocares jeanneli, pronotum. (From Hinton, 1937, Fig. 19.) Fig. 32. Omotonus notabilis, prosternum. (From Delève, 1963, Fig. 7.) Fig. 33. Potamogethes major, prosternum. (From Delève, 1963, Fig. 14.) Fig. 34. Omotonus notabilis, aedeagus; bp = basal piece. (From Delève, 1963, Fig. 2.) Fig. 35. Potamophilinus foveicollis, aedeagus. (From Bollow, 1938, Fig. 26c.)

> Hispaniolara, new genus (Figs. 6, 17, 49–57)

Form.—Very elongate, slender, subparallel; subcylindrical (Fig. 6). Vestiture.—Clothed with very short and inconspicuous but dense hairs.



Figs. 36-45. Fig. 36. Potamophilinus foveicollis, abdomen. (From Bollow, 1938, Fig. 24.) Fig. 37. Potamophilus acuminatus, abdomen. (From Bollow, 1938, Fig. 42.) Fig. 38. Parapotamophilus gressitti n. sp., abdomen. Fig. 39. Potamophilus acuminatus, male, abdominal sternite 6. (From Bollow, 1938, Fig. 43.) Fig. 40. Parapotamophilus gressitti n. sp., male, abdominal sternite 6. Fig. 41. Potamophilinus foveicollis, male, abdominal sternite 6. (From Bollow, 1938, Fig. 25.) Figs. 42, 43. Potamophilus acuminatus, aedeagus, lateral and dorsal aspects. (From Bollow, 1938, Fig. 44.) Figs. 44, 45. Parapotamophilus gressitti n. sp., aedeagus, lateral and dorsal aspects.

*Head.*—Not capable of being retracted into thorax beyond eyes. Antenna (Fig. 49) 11-segmented, rather short and compact; basal segment longest, slightly curved, apically inflated, with posterior surface fitting snugly over eye and bordered by long, decurved setae that fit over eye; segment 2 sub-

globular and also bordered by long setae matching curvature of eye; segments 3–11 forming a rather compact club. Mandible (Fig. 50) with 1 subacute subapical and 2 subacute apical teeth; outer basal angle with a digitiform lobe; molar process well-developed and bearing transverse ridges; prostheca membranous but bordered mesally with a pectinate row of rather short setae. Maxilla (Fig. 51) with palp 4-segmented and stipes with a welldeveloped palpifer; galea and lacinia separate and densely spinose. Labium (Fig. 52) with palp 3-segmented; prementum with palpiger; ligula expanded laterally; mentum and submentum transverse.

*Pronotum*.—Basal angles acute; with a subapical transverse groove; without longitudinal sulci or carinae; margined laterally.

*Elytra.*—Striate and punctate; without accessory striae and without carinae.

*Hind wing.*—(Fig. 17) Without radial cross-vein; with a closed anal cell; veins  $2A_1$  and  $2A_2$  fused; 1A incomplete or discontinuous between cross-vein cu-a and wing margin.

*Prosternum.*—(Fig. 53) Very short in front of anterior coxae; process long, without median longitudinal carina.

*Mesosternum* transverse, with a narrow groove for reception of prosternal process; this groove expanded posteriorly.

*Metasternum* subquadrate, ratio of length to width at least 2:3; with a median longitudinal impressed line.

Abdomen.—Sternite 1 longest, 2 noticeably shorter than 1 but longer than 3, 3 slightly longer than 4, 4 and 5 subequal, 6 small and largely obscured by hairs from 5. Sternites 1–3 with posterior margins straight, those of 4 straight in male but broadly emarginate in female, that of 5 convex but with a narrow apical notch or emargination, those of 6 rather broadly and distinctly emarginate in male (Fig. 54) but narrowly and feebly emarginate in female. Spiracles of segments 4 and 5 greatly enlarged and directed posteriorly.

Legs with front coxae transverse and trochantin distinctly visible; front and middle legs with femora very compressed in anteroposterior plane and expanded dorsoventrally, with middle femur greatly elongated (longer than body width across humeri). Front and middle legs, when extended at right angles to body axis, can fit rather tightly together, but are widely separated from hind legs. Claws without teeth.

*Male genitalia* (Figs. 55, 56) slender and elongate, with basal piece welldeveloped and much longer than parameres; penis much longer than parameres.

Female genitalia (Fig. 57) with relatively elongate coxites and styli.

*Etymology*.—The generic name is feminine and is derived from Hispaniola, the island on which it occurs, combined with *Lara*, the type-genus of the subfamily Larinae. Type-species.—Hispaniolara farri Brown, new species, which is described below.

> Hispaniolara farri, new species (Figs. 6, 17, 49–57)

Holotype male.—(Fig. 6) Body about 3 times as long as wide; widest at apical fourth of elytra and across elytral humeri. Length 6.75 mm; width 2.1 mm.

*Coloration.*—Dorsum dark brown to black, elytra slightly lighter than head and pronotum. Golden pubescence of occipital portion of head and most of body may confer a lighter cast when seen from certain angles. Venter somewhat lighter than dorsum, especially on metasternum. Cuticle feebly shining.

*Head.*—Width across eyes 1.3 mm. Occipital region rounded and slightly swollen; frons shallowly excavated on each side near antennal base; anterior margin of frons feebly bisinuate; anterior margin of clypeus broadly convex, with the angles broadly rounded. Labrum densely covered with erect golden hairs, anterior margin shallowly and arcuately emarginate at middle, with angles broadly rounded. Antenna as figured (Fig. 49), not reaching base of pronotum. Mandible as in Fig. 50. Maxilla (Fig. 51) with palp dark, short, and stout; segments 2 and 3 apically expanded; segment 4 a little longer than wide and obliquely truncate, the apical sensory surface being shallowly concave, oval in outline, and lighter in color. Labium (Fig. 52) with ligula densely covered with pale, stiff hairs, those on the lateral lobes being recurved; palp short and stout, with segment 3 rather dark except at flattened apical sensory surface.

*Pronotum* broadest at base (1.8 mm), 1.2 mm long, tapering arcuately from base, almost to apex; slightly flared at apex, which is 1.2 mm wide. Anterior margin feebly arcuate; posterior margin bisinuate on each side. Transverse impression medially at apical fourth and laterally at apical eighth, forming an anterior collar that conforms to contours of occipital portion of head. With shallow excavations laterally in basal quarter, and with very feeble median longitudinal impression from base to transverse impression; on each side with a feeble prescutellar impression which extends anterolaterally.

*Elytra* more than 4 times as long as pronotum (5.5 mm:1.2 mm); broadest across humeri and near apical fourth. Sides subparallel, slightly constricted near middle where hind femora fit against sides; apices independently rounded and slightly divergent. Lateral margins smooth and feebly explanate toward apices. Humeri slightly gibbous. Elytral intervals essentially flat. Sutural intervals narrow at base, gradually widening in basal third. Strial punctures round to subquadrate, becoming feebler and shallower apically so that on apical sixth they have virtually disappeared.

*Hind wing* with venation as figured (Fig. 17).

Scutellum slightly broader than long (0.30 mm:0.25 mm), almost flat, and with vestiture like that of elytra.

Venter with prosternum and abdominal sternite 6 as figured (Figs. 53, 54). Legs long and slender; front femur 2.0 mm, tibia 2.0 mm; middle femur 2.5-2.6 mm, tibia 2.25 mm; hind femur 1.8 mm, tibia 1.6 mm; each tarsus 1.25 mm. Front and middle femora blade-like. Middle tibia glabrous except for narrow longitudinal band of tomentum on mesal margin.

*Genitalia* as figured (Figs. 55, 56). Aedeagus 1.5 mm long, 0.17 mm wide, subparallel; penis slightly shorter than basal piece and fully twice as long as parameres, expanded beyond parameres to width of basal piece, with exposed portion decurved and tapering to a subacute apex.

*Female* externally similar to male except as follows: pronotum slightly narrower at base (1.7 mm); abdomen with sternite 5 broader and less convex, and sternite 6 with posterior margin narrowly and feebly emarginate at middle. Genitalia as figured (Fig. 57).

*Types.*—Holotype-male, DOMINICAN REPUBLIC: Dist. La Vega: mountain stream w. Jayaco, elev. 1170 m, 10/X/1971, Harley Brown, deposited in Stovall Museum of Science and History, Norman, Oklahoma. Allotype, same data as type, deposited with holotype; genitalia on slide Hifa-FG1. Paratype: male, DOMINICAN REPUBLIC: Dist. La Vega: Rio Lo Candango w. Bonao, elev. 1025 m, 10/X/1971, Harley Brown, dissected and with parts mounted on slides Hifa-Ag1, Hifa-An1, Hifa-Av1, Hifa-W1, deposited with holotype. One larva with same data as paratype, deposited with holotype; to be described elsewhere.

*Etymology*.—The species is named in honor of Dr. Thomas H. Farr, who served the Institute of Jamaica long and well, and was gracious host to many a visiting biologist.

Discussion.—Hispaniolara is proportionately the slimmest or lankiest member of the Larinae, bearing slight resemblance to the rather chunky little Phanocerus, the only other member of the subfamily known from Hispaniola. Geographically, the next closest larine neighbor is Hexanchorus caraibus, 600 miles away on Guadeloupe. In both structure and habits, Hispaniolara is much more like Hexanchorus than like Phanocerus, although Hexanchorus is also much smaller and relatively broader than the new genus. Both Hexanchorus and Phanocerus differ from Hispaniolara in lacking an anal cell in the hind wing. In size, Hispaniolara is comparable to Lara, Disersus, Pseudodisersus, and Potamophilops, but our western montane Lara is strikingly different from the 4 neotropical genera in both habits and structure. Adults of Lara are not even aquatic, whereas I have observed Hispaniolara and Potamophilops in shallow, fast water, apparently employing the remarkable respiratory mechanics described by Stride (1955) for their African cousin, Potamodytes. The presence of an accessory elytral stria will serve to separate *Lara* from the 4 neotropical genera. Although *Hispaniolara* bears a superficial resemblance to *Disersus*, it differs in having a transverse pronotal impression, differently formed antennae, and much longer middle femora. *Hispaniolara* appears to be closest to *Potamophilops* and *Pseudodisersus*, though it differs from them in pronotal and elytral contour, shape of middle tibiae, details of wing venation, and in having unusually long middle femora. Both male and female genitalia are distinctive and somewhat intermediate in form between those of *Hexanchorus* and *Potamophilops*.

The larva of *Hispaniolara*, which is clearly different from all other known larine larvae of the New World, will be described elsewhere. In many respects, it resembles larvae of such elmine genera as *Stenelmis* and *Neocylloepus*.

Ovolara, new genus

(Figs. 9, 20, 27, 29, 58)

Form.—Ovate, convex.

*Vestiture*.—Entire surface rather densely covered with short, mostly decumbent hairs.

Head.-Rounded, capable of being retracted within thorax to eyes; deflected so as to be barely visible from above. Width of head capsule across eyes subequal to width of pronotum at apex. Antenna (Fig. 27) short, not reaching beyond middle of pronotum; 11-segmented, inserted at front margin of eye; segment 1 longest and fitting over surface of eye, segment 2 ovoid, segments 3–11 gradually enlarging to form a rather compact club; segments 6-10 broader than long. Mandible with 2 or 3 sharp, chisel-like apical teeth, an ear-like outer lateral lobe, and a prominent, hemispheric, medially directed basal lobe that apparently serves a molar function; prostheca broad and membranous but with spinose apex. Maxilla with palp 4segmented; stipes with well-developed palpifer; cardo well-sclerotized and with a deep notch on outer margin; galea and lacinia densely spinose, lacinia at apex with several rows of decurved spines. Clypeus transverse and distinct. Labrum transverse, with apical margin densely spinose, angles rounded. Labium with palps short and 3-segmented; prementum with palpigers; ligula expanded laterally and densely spinose; both mentum and submentum transverse.

*Pronotum.*—Broader than long; with basal margin bisinuate, basal angles acute, anterior margin arcuate, lateral margins feebly sinuate near base, then broadly arcuate to apex; with sublateral longitudinal carinae in basal fifth; without transverse impressions; disk rather evenly convex except for a feeble median elevation at base which becomes a feeble impression near middle; surface rather finely punctate.

Scutellum.—Relatively small, about as wide as long, with rounded sides; very feebly raised.

*Elytra.*—Much broader across humeri than base of pronotum; widest at or near humeri, which are rather prominent; twice as long as wide and about 3.5 times as long as pronotum. With an accessory stria between sutural and second stria in basal fifth. Strial punctures relatively large and distinct, most of the striae extending to margin. Intervals rather flat, none being elevated to form carinae. Margins broadly arcuate to apex; elytral apices conjointly rounded.

*Hind wing*.—Without radial cross-vein or closed anal cell; with veins 1A,  $2A_1$ ,  $2A_2$  rather well-developed; cross-vein cu-a present (Fig. 20).

*Prosternum.*—Anterior margin produced beneath head; length between anterior margin and procoxal cavity greater than breadth of prosternal process; process medially carinate, subacute at apex and relatively broad between procoxae (Fig. 29).

Mesosternum.—Short and transverse, with a deep, median, V-shaped excavation in anterior <sup>2</sup>/<sub>3</sub> to accommodate prosternal process.

*Metasternum*.—Transverse, twice as wide as long; with a median longitudinal groove; each side broadly convex.

Abdomen.—Tapering arcuately from base to rounded apex; width at base more than <sup>3</sup>/<sub>4</sub> of length; 5 visible segments (only females seen); segments 1 and 5 longest and subequal, 2 perceptibly shorter than 1, 3 sightly shorter than 2, and 4 perceptibly shorter than 3; all segments broadly convex; punctation similar to that of metasternum.

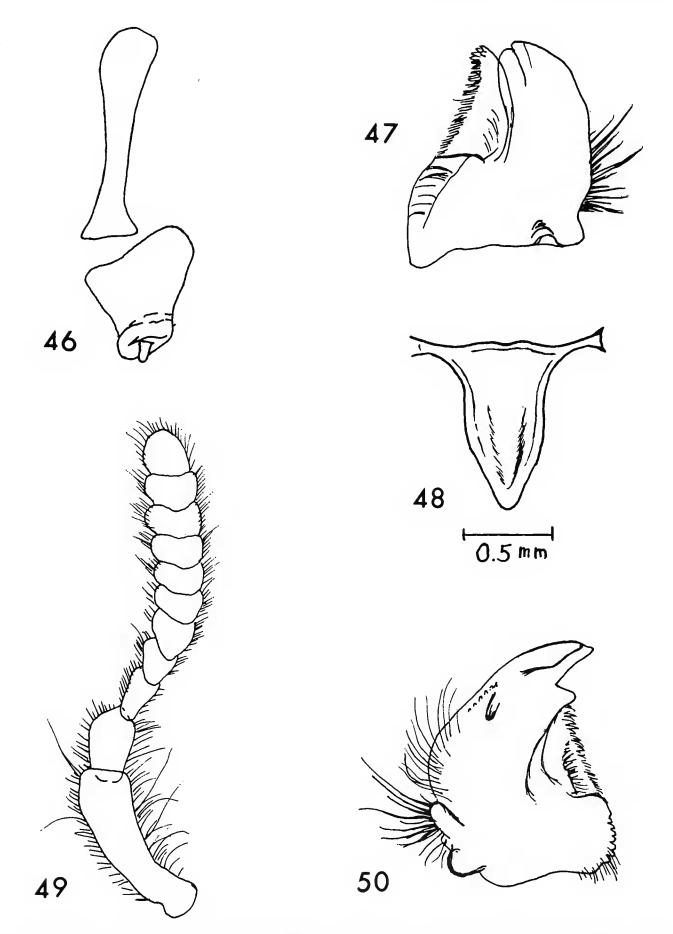
Legs.—Relatively short and stout; femora not flattened or bladelike; femur of front leg grooved on anteroventral surface for reception of tibia; femora of middle and hind legs grooved thus on posterior surface; claws without teeth.

Genitalia.—(Only females seen) Both coxites and styli relatively slender and elongate (Fig. 58).

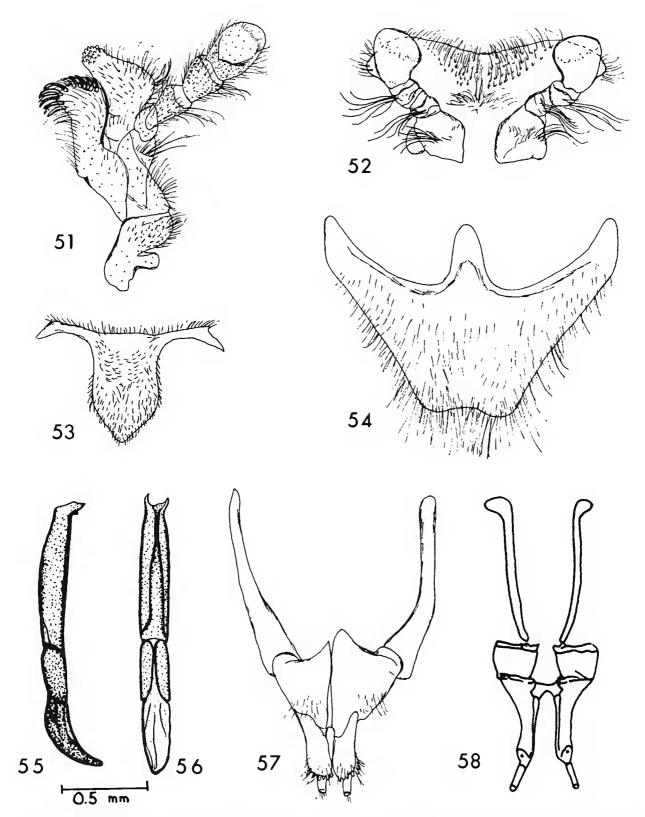
*Etymology*.—The generic name *Ovolara* is feminine and is derived from a combination of the Latin word *ovum*, referring to the egg-like shape of the body, and *Lara*, the type-genus of the subfamily Larinae.

Type-species.—Lutrochus australis King (1865, p. 159).

Discussion.—Although originally described in the genus Lutrochus Erichson, which is not even a member of the family Elmidae, and later moved to Hydrethus Fairmaire, Ovolara would key to Hydora Broun in the key provided by Hinton (1940), and is probably closest to that genus. Members of both genera are much smaller in size than most members of the subfamily, and approximate the dimensions of such neotropical forms as Hexanchorus and Phanocerus. Ovolara differs from Hydora in being more robust and ovoid in shape, in having a much more clavate antenna, the prosternum produced anteriorly, and different wing venation (e.g., veins  $2A_1$  and  $2A_2$ 



Figs. 46-50. Fig. 46. Parapotamophilus gressitti n. sp., female genitalia. (From Satô, 1973, Fig. 10.) Fig. 47. Parapotamophilus gressitti n. sp., mandible. Fig. 48. Parapotamophilus gressitti n. sp., prosternum. Fig. 49. Hispaniolara farri n. sp., male, antenna. Fig. 50. Hispaniolara farri n. sp., male, mandible.



Figs. 51–58. Fig. 51. *Hispaniolara farri* n. sp., male, maxilla. Fig. 52. *Hispaniolara farri* n. sp., male, labium. Fig. 53. *Hispaniolara farri* n. sp., male, prosternum. Fig. 54. *Hispaniolara farri* n. sp., male, sixth abdominal sternite. Fig. 55. *Hispaniolara farri* n. sp., male genitalia (aedeagus), lateral aspect. Fig. 56. *Hispaniolara farri* n. sp., aedeagus, dorsal aspect. Fig. 57. *Hispaniolara farri* n. sp., female genitalia. Fig. 58. *Ovolara australis* (King), female genitalia.

are both present and distinct and cross-vein cu-a is present, whereas in  $Hydora 2A_1$  and  $2A_2$  are represented by a single vein and cu-a is lacking). From *Stetholus*, the only other genus of Larinae known from Australia besides Hydora and Ovolara, it differs in being much smaller, ovate rather than elongate and subparallel, in having the pronotum with sublateral carinae at base, the prosternum produced beneath head and rather long anterior to coxae, and more clavate antennae. Judging from the body contour and leg structure, I would surmise that the habits and ecology of *Ovolara* would approximate those of *Phanocerus*, which is essentially riparian, rather than those of such aquatics as *Hispaniolara*, *Potamophilops*, and *Potamodytes* (cf. Stride, 1955).

Another species assigned to Ovolara is Hydrethus leai Carter 1926.

## Parapotamophilus, new genus (Figs. 38, 40, 44–48)

*Form.*—Elongate, subcylindrical; broadest near humeri, tapering gradually toward elytral apex.

*Vestiture*.—Surface rather densely covered with short, inconspicuous hairs.

Head.—Retractile within thorax to eves; width of head capsule across eyes only slightly greater than width of pronotum at apex. Antenna 11segmented, short, not reaching beyond middle of pronotum; inserted at front margin of eye; segment 1 longest, apically tumid, extending less than half way over surface of eye; segment 2 ovoid, longer than broad; segments 3-11 enlarging to form a rather compact club; segments 4-10 broader than long. Mandible (Fig. 47) strong, with subacute apical and blunt medial or subapical tooth; outer margin in basal half bearing rather long, subcrect setae; with a prominent, rounded, medially-directed basal lobe that presumably serves a molar function; prostheca membranous but with a pectinate median border of erect hairs on spines. Maxillary palp 4-segmented with apical segment flared into a shallow cup directed anteriorly; stipes with welldeveloped palpifer; cardo well-sclerotized; galea and lacinia separate and subequal, each densely spinose at apex. Clypeus transverse, less than half as long as labrum. Labrum transverse, with anterior angles expanded and rounded, and covered by a dense brush of curved setae; anterior margin bisinuate and densely covered with very short, suberect setae. Labium with palps short and 3-segmented, the apical segment somewhat flattened in anteroposterior plane; prementum with palpigers; ligula expanded laterally and rather densely setose; both mentum and submentum transverse; gula slightly elongate, longer than combined submentum and mentum.

*Pronotum.*—Slightly broader than long; broadest near base; basal margin bisinuate; basal angles bidentate; anterior margin subtruncate; lateral margin

arcuate from sub-basal tooth anteriorly, but slightly sinuate near apex; without longitudinal carinae or sulci and without transverse grooves or impressions; on each side with a shallow lateral excavation or impression near base and another near apex, and with a small, shallow prescutellar impression.

*Scutellum*.—Slightly longer than wide; triangular with all sides rounded; very feebly convex.

*Elytra.*—Much broader across humeri than base of pronotum; widest at humeri and in basal third; more than twice as long as broad and more than 3 times as long as pronotum. Humeri prominent. With an accessory stria between sutural and second stria in basal fifth. Strial punctures distinct but partially obscured by pubescence. Intervals rather flat, none being elevated to form carinae. Lateral margins subparallel in basal third, then sinuate at edge of first abdominal sternite where hind femora may be appressed to sides; feebly explanate. Elytral apices slightly divergent and independently rounded.

*Hind wing.*—Venation essentially like that of *Potamophilus* (Fig. 26); without radial cross-vein; with closed anal cell; with separate veins 1A,  $2A_1$ , and  $2A_2$ ; vein  $3A_1$  joining 2A at proximal margin of anal cell.

*Prosternum*.—Anterior margin not produced; length from anterior margin to procoxal cavity very short; prosternal process subequal in width to diameter of eye and twice as long as wide, raised medially and along anterolateral margins, tapering from basal third to subacute apex (Fig. 48).

Mesosternum.—Short and transverse, completely divided medially by excavation to accommodate prosternal process.

*Metasternum*.—Transverse, about twice as wide as long; broadly convex on each side of median longitudinal groove.

Abdomen.—With 5 visible sternites in female, 6 in male, tapering posteriorly from apex of sternite 2; segment 1 longest, 2–4 progressively shorter, 5 subequal to 4; male with posterior margin of segment 5 arcuately emarginate, that of segment 6 narrowly emarginate (Figs. 38, 40).

Legs.—Relatively long and slender; front and middle legs with femora and tibiae slightly flattened; femora not grooved for reception of tibiae; claws without teeth.

*Genitalia*.—Male with aedeagus elongate, ca. 4 times longer than wide, sides subparallel; penis and basal piece subequal in length; penis slightly longer than parameres, inflated and complex at apex, consisting of 2 dissimilar portions or lobes: a broader ventral one which is spoon-shaped, sub-apical, with its ventral surface concave, and a smaller apical portion which is reflexed dorsally and deeply excavated laterally to accommodate apices of parameres; parameres fused at base, with apices expanded into lateral cushions (Figs. 44, 45). Female genitalia with coxites short and stout; styli

short and less than one-fourth as wide as coxite at apex; struts rather short and stout, expanded at both ends (Fig. 46).

*Etymology.*—The generic name *Parapotamophilus* is masculine and is formed by adding the prefix *para* (Greek word meaning *near*) to the generic name *Potamophilus* (Greek for "river-lover").

Type-species.—Parapotamophilus gressitti, new species, which is described below.

Discussion.—Parapotamophilus n. g. is probably closest to Potamophilus, whose geographic range extends from the East Indies to Europe and which it greatly resembles, the general appearance and wing venation being almost identical. It differs from Potamophilus in mandibular structure, having 2 blunt rather than 3 sharp teeth, in having the abdomen tapering rather than abruptly rounded, in having the elytral apices rounded rather than acute, and most importantly in the form of the male genitalia and the associated abdominal sternite 6. In Potamophilus the penis and parameres taper to rather slender apices, and are separate; the basal piece tapers from apex to base; sternite 6 is very short and broad with a stout median anterior process and a very broadly emarginate posterior margin (Fig. 39). In Parapotamophilus the penis and parameres are subparallel with bluntly lobate apices, and are fused at the base; the basal piece is long and subcylindrical; sternite 6 is proportionately longer and narrower, with a slender anterior median process and a narrowly emarginate posterior margin (Fig. 40). Parapotamophilus is also quite similar to Potamophilinus in general appearance and dimensions, and the latter genus is well represented in Southeast Asia and the East Indies. Potamophilinus differs from the new genus in wing venation (veins  $2A_1$  and  $2A_2$  are combined rather than separate), abdominal structure (sternites 1 and 2 are much longer than the remaining segments as in Fig. 36), and genitalia; sternite 6 of the male is rather like that of the new genus but much longer, the anterior median process being exaggerated (Fig. 61); the aedeagus is also somewhat like that of Parapotamophilus but with the penis and parameres separate, abruptly arched at base, very long and slender, and less complex at apex (Fig. 35).

Parapotamophilus gressitti, new species

(Figs. 38, 40, 44-48)

Potamophilus papuanus (Carter). Satô, 1973, Pacific Insects 15(3/4): 468, figs. 9-10.

Holotype male.—Length 6.7 mm; width 2.4 mm. Widest across elytral humeri.

*Coloration.*—Dorsum dark brown to black, feebly shining. Venter mostly dark brown to black and more conspicuously pubescent than dorsum; meta-sternum and coxae somewhat lighter; abdominal sternite 6, the median por-

tion of 5, and posterior margin of 4 at middle testaceous. Legs reddish to dark brown.

*Head.*—Width across eyes 1.3 mm. Vertex feebly convex. Antennae with segments 1 and 2 lighter than 3–11. Clypeus 6 times wider than long, with anterior margin straight. Labrum about twice as wide as long, with apical half paler. Mandible as figured (Fig. 47). Maxillary palp subequal in length to antennal segments 1+2, with apical segment dark brown. Labial palp subequal in length to apical segment of maxillary palp, not visible from above; apical segment brown, with apex convex. Submentum and gula covered with rather long golden hairs.

*Pronotum.*—Length 1.5 mm; greatest width 1.7 mm in basal half, basal angles feebly bidentate, not acute. Lateral sub-basal excavation with anterior margin bordered by hairs which form a feeble oblique ridge or brow (very inconspicuous on the holotype, but quite noticeable on some paratypes). Surface smooth, finely punctate; pubescence inconspicuous.

Prosternum.—As shown in Fig. 48.

Elytra.—Length 5.4 mm; width 2.4 mm across humeri.

Abdomen.—As shown in Figs. 38 and 40.

Legs.—Front femur 1.6 mm, tibia 1.7 mm, tarsus exclusive of claws 1.1 mm. Middle femur 1.8 mm, tibia 1.95 mm, tarsus 1.0 mm. Hind femur 1.7 mm, tibia 1.7 mm, tarsus 1.0 mm. Middle tibia at inner apex with a small, blunt spur, which appears to be a secondary sexual character. Middle leg differs from front and hind legs in having tibia and tarsus more flattened and less pubescent. Otherwise, legs are devoid of noticeable spines or unusual features.

Aedeagus.—Length 2.25 mm; greatest width (basal piece) 0.4 mm. Parameres with lateral apical cushions bilobate and occupying distal third (Figs. 44, 45).

*Female.*—Slightly larger than male; length 6.75 mm, width 2.5 mm. Abdomen with segment 6 withdrawn beneath 5; segment 5 with posterior margin narrowly emarginate at middle. Middle tibia at inner apex without spur. Otherwise similar to male. Genitalia as illustrated in Fig. 46.

*Etymology*.—The species is named in honor of Dr. Judson Linsley Gressitt, who collected the type-series and who has contributed so much to our knowledge of phytophagous beetles of New Guinea.

Types.—Holotype male: NEW GUINEA: N.E., Wonenara, 6°40'S, 145°55'E, 1450 m, light trap, 14/VI/66, J. L. Gressitt; deposited in Bernice P. Bishop Museum, Honolulu, Hawaii. Allotype: same data as holotype, deposited with holotype. Paratypes: 50 with same data as types; 28, same except Gressitt & Wilkes.

Discussion.—Stetholus papuanus Carter was described from 7 specimens taken by C. T. McNamara at 1300 ft. on Mt. Lamington, Northeast Papua (Carter, 1930). This species was transferred to *Potamophilus* by Hinton (1935, p. 173). The specimens upon which I base the description of the new genus Parapotamophilus and the species P. gressitti were examined by Satô (1973) and assigned by him to Potamophilus papuanus (Carter). My initial reason for assuming that gressitti is distinct from papuanus was that Carter described the pronotum thus: ". . . the posterior angles bidentate, formed by a deep subcircular excision, each tooth acute . . . .'' His figure of papuanus (Fig. 13) agrees with this description, showing two acute and prominent teeth. In gressitti the posterior angles are feebly and inconspicuously bidentate, the teeth not acute, and the excision could hardly be said to form the bidentate condition since both teeth occur at or near the posterolateral border of the excision. Examination of one of Carter's syntypes, kindly sent to me by Dr. C. M. F. von Hayek of the British Museum (Natural History), bears out the accuracy of Carter's description and illustration. Fortunately, this syntype happened to be a male. Although the apices of both penis and parameres are missing, the structure of the aedeagus (Figs. 59, 60) is typical of *Potamophilus*, rather than *Parapotamophilus*. I might add that it was Satô's figure of the aedeagus of what he thought to be P. papuanus that led me to suspect that the specimens he examined represented a new genus, since the aedeagal structure was so different from that of other species of Potamophilus.

> Pseudodisersus, new genus (Figs. 5, 61–64)

Form.—Oblong.

*Vestiture*.—Covered with fine, dense pubescence above and below and on legs.

*Pronotum.*—(Figs. 5, 61) Transverse; narrowed anteriorly; with a deep, anterior, transverse impression and a distinct, median, longitudinal impression extending from base to anterior transverse impression; sides narrowly margined; posterior angles bidentate; posterior margin raised medially.

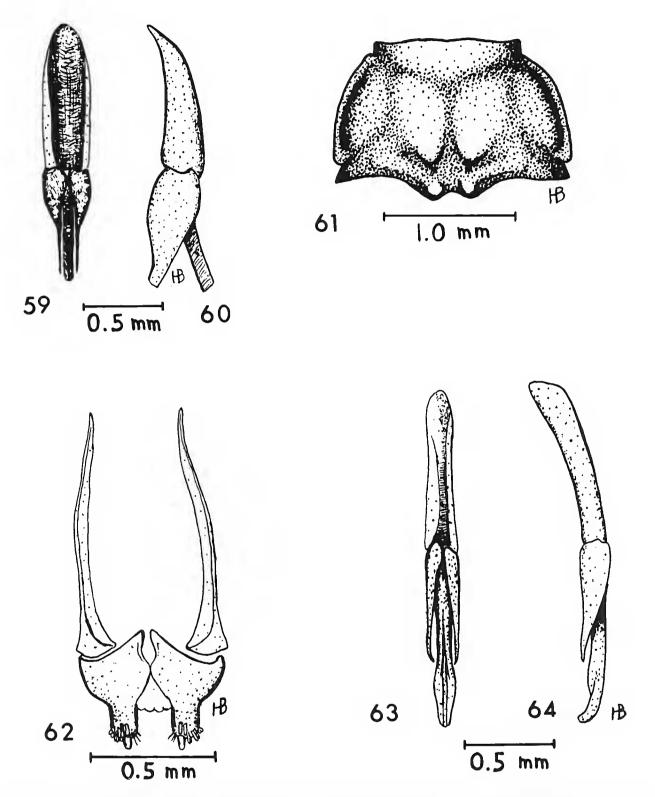
*Elytra*.—Long and narrow; slightly broader across humeri than pronotum; tapering from humeri; acute and slightly divergent at apices; without accessory striae; intervals only slightly raised, none carinate.

*Hind wings.*—Venation like that figured for *Disersus* (Fig. 16); without radial cross-vein; with closed anal cell; vein 1A interrupted between cross-vein cu-a and wing margin; veins  $2A_1$  and  $2A_2$  fused; vein  $3A_1$  joining  $2A_3$  on posterior margin of anal cell slightly distal to base of cell.

*Prosternum* short in front of coxae; with anterior margin reflected; process very broadly triangular and shallowly excavated, rounded at apex.

Mesosternum transverse, with deep subcircular excavation to accommodate prosternal process extending to posterior margin.

*Metasternum* divided by a narrow, median, longitudinal groove; disk broadly and rather shallowly excavated on each side of midline.



Figs. 59-64. Figs. 59, 60. *Potamophilus papuanus*, aedeagus in dorsal and lateral aspects, drawn from syntype in British Museum (Natural History). Apices of penis and parameres apparently broken off. Figs. 61-64. *Pseudodisersus coquereli* n. sp. Fig. 61. Pronotum, dorsal aspect; Fig. 62. Female genitalia; Figs. 63-64. Aedeagus in dorsal and lateral aspects.

Abdomen with only 5 visible segments in both sexes; segments 1–4 progressively shorter; tapering from posterior margin of segment 2 to narrow apex; segment 1 on each side with a longitudinal carina extending from mesal anterior margin of coxal cavity to apical (posterior) third, feebly excavated between carinae. Legs very compressed and flattened; hind legs shortest and least flattened; tarsal claws without basal teeth.

*Genitalia*.—Aedeagus of male (Figs. 63, 64) long and slender; basal piece long and well-developed; penis long and slender; parameres not fused, long and slender but shorter than penis, acute at apex. Female genitalia (Fig. 62) with both coxites and styli short; coxites broad at base; struts long and slender.

*Etymology*.—The generic name is masculine and combines the prefix *pseudo*, meaning false, with *Disersus*, the genus from which it is being extracted.

*Type-species.—Pseudodisersus coquereli*, new species, which is described below.

# Pseudodisersus coquereli, new species (Figs. 61-64)

Size.—Length 6.4–6.8 mm; width 2.1–2.4 mm.

Coloration.—Body dark reddish brown, darker on head and thorax; antennae testaceous to brown.

*Head.*—Smooth, rounded, without noticeable impressions; finely punctate and pubescent. Antennae short, subequal in length to width of head across eyes; pubescent. Clypeus short and transverse, 6 times broader than long; anterior margin straight, bordered by a row of curved, eyelash-like setae. Labrum transverse, 3 times broader than long; angles rounded; anterior margin bordered by a fringe of pale hairs. Mandible not prominent, with only 1 apical tooth visible in pinned specimens. Maxillary palp pubescent, rather inconspicuous; segment 4 subequal in length to segment 3 but darker in color, with sensory apex diagonal, subcircular, and flattened or feebly concave. Labium with long, pale hairs arising from mentum, prementum, and subapical segment of palp; palp with distal segment dark, compressed, and similar in size to sensory apex of maxillary palp. Gula slightly transverse, narrower than mentum, subequal to postmentum, with all 4 margins emarginate.

*Pronotum.*—(Fig. 61) Length 1.3–1.5 mm; width 1.95–2.20 mm. Median longitudinal impression bordered on each side by a rounded, slightly diagonal prominence extending from basal quarter to apical quarter. On each side, between this prominence and the lateral margin with another rounded longitudinal prominence parallelling the lateral margin. Also on each side, posterior to submedian prominence and parallelling posterior margin, with a low transverse ridge culminating submedially in a conspicuous, dorsally projecting, digitiform prominence just anterior to scutellum. Anterior margin collar-like, feebly bisinuate; posterior margin bisinuate on each side; on each side with posterior angle acute and depressed, sub-basal tooth raised

and forming posterior end of lateral marginal flange; sides converging arcuately from sub-basal tooth to apical collar, in apical tenth parallel; anterior angles rectangular.

Scutellum triangular, elongate, raised posteriorly.

*Elytra* more than 2 times longer than wide (5.5:2.4 mm); humeri not very prominent.

Legs pubescent except middle tibia and distal half of outer surface of hind tibia, which are glabrous. Measurements: front femur 1.7 mm, tibia 1.9 mm, tarsus except claw 1.25 mm; middle femur 2.0 mm, tibia 1.75 mm, tarsus 1.25 mm; hind femur 1.9 mm, tibia 1.65 mm, tarsus 1.15 mm.

*Male genitalia* as figured (Figs. 63, 64); penis subequal in length to basal piece, slightly expanded and laterally flanged beyond tips of parameres, apex feebly decurved and bluntly rounded; parameres two-thirds as long as penis, tapering from base to acute apex, curved feebly inward at apex.

*Female.*—Like male, but with metasternum and abdominal segment 1 more shallowly excavated, and with abdominal segment 5 rounded at apex. Last abdominal tergite also with apex rounded, instead of acute as in male. Genitalia (Fig. 62) with each coxite bearing about 8 apical or subapical, erect, blunt, spinose setae in addition to a few, short, ordinary setae.

Habitat.—Though Coquérel (1851) states that Goudot's specimens were close to water on moist rocks in the middle of a fast-flowing river along with adults of *Hexanchorus cordillierae* (Guérin) 1843, I would suspect from the morphology of those I have examined that adults of *Pseudodisersus coquereli* n. sp. are typically submerged in fast, shallow water as described by Stride (1955) for *Potamodytes tuberosus*.

*Types.*—Holotype: male, COLOMBIA, Sharp Coll., 1905-313. Allotype female: COLOMBIA, Bogotá, Sharp Coll., 1905-313. Paratypes: 5 with same data as holotype; 4, COLOMBIA without further data (2 from H. E. Hinton Coll. but not collected by him); 1, Andes. Location of types: Holotype, allotype, and 8 paratypes in British Museum (Natural History), 2 paratypes in Stovall Museum of Science and History, Norman, Okla.

*Etymology*.—The species is named for Dr. Jean Charles Coquérel, whose description enabled me to determine that the specimens he had examined represented a new genus.

Discussion.—When Sharp (1882) erected the genus Disersus for D. longipennis Sharp 1882, he noted that Potamophilus goudotii Guérin 1843 also belonged to his new genus, but did not mention Potamophilus cacicus Coquérel 1851. Sharp was primarily concerned with separating these neotropical species from the European Potamophilus, and concentrated upon ventral characters such as prosternal and mesosternal configuration. Following suit in employing ventral characters, Grouvelle (1896) transferred P. cacicus to Disersus and created 3 new genera, Potamophilops, Potamophilinus, and Potamodytes. Zaitzev (1910) and Blackwelder (1944) continued to list longipennis, goudotii, and cacicus as members of the genus Disersus. Hinton (1940) presumably had not examined specimens of goudotii when he prepared his key, for he made no mention of this species although the key character he used to distinguish Disersus (absence of an anterior, transverse, pronotal impression) would exclude goudotii from the genus. Apparently Hinton also failed to notice that Coquérel (1851) employed this character in his key to separate goudotii from cacicus. It was this feature of Coquérel's key that alerted me to the fact that goudotii might require the creation of a new genus.

*Pseudodisersus* n. g. differs from *Disersus*, *Lara*, *Hydora*, and *Phanocerus* in having the pronotum with a distinct transverse impression in the anterior third and bidentate posterior angles. From *Hexanchorus*, *Hispaniolara*, and *Potamophilops* it differs in having a deep, median, longitudinal pronotal impression. In size, shape, and general aspect, *Pseudodisersus* most resembles *Potamophilops* from central Brazil. The genitalia are distinctive, but probably closest to those of *Disersus*.

Guérin (1843) described Potamophilus goudotii from specimens collected by Justin Goudot from the Rio Chipalo in New Grenada during September and October of 1842 and deposited, I presume, in the Paris Museum. Coquérel (1851) apparently redescribed the species from the same material. I have not seen these specimens, nor have I been able to determine just where the Rio Chipalo is located. From Sharp (1882) and Blackwelder (1944), I gather that it is in Colombia, in some mountainous region. Fortunately, the British Museum (Natural History) has a number of specimens from the Sharp Collection identified as members of this species, and it is upon this material that I have based my descriptions. Since Coquérel's description indicates that Goudot's specimens were larger than those I have seen (7 mm long, 2.5 mm wide as compared with 6.4-6.8 mm long and 2.1-2.4 mm wide), and apparently differ from my description in details concerning the pronotum, I presume that they represent a different species of Pseudodisersus, and it is appropriate that I describe the new one. If future comparison of the two series indicates that they represent a single species, the typespecies of Pseudodisersus will become P. goudotii (Guérin) 1843 instead of P. coquereli Brown. If the descriptions are accurate, goudotii (Fig. 5) differs from coquereli (Fig. 61) in having the pronotum with posterior angles acute and raised and the median longitudinal impression with elevated edges, as well as in being larger as mentioned above.

I have collected several larvae in mountain streams near Bogotá, Colombia, which are probably those of *Pseudodisersus*. They will be described elsewhere. The larva from Bolivia tentatively attributed to *Disersus* by Hinton (1940) in his key to larval elmids probably represents *Pseudodisersus* instead.

The creation of this new genus necessitates a few changes in the definition

or diagnosis of the genus *Disersus*; that given below is from Sharp (1882), with features added which differentiate this from related genera.

## Disersus Sharp 1882 (Figs. 4, 16)

Diagnosis.—Body elongate, clothed with short, dense pubescence. Labrum very broad, wider than clypeus. Antennae widely separated at base, 11-segmented, with basal segment elongate, segment 2 simple, almost transverse, 3-11 subequal. Anterior coxae very widely separated. Prosternum subtriangular, extremely short in front of coxae. Mesocoxae also widely separated. Mesosternum with large, deep excavation to accommodate prosternal process extending to metasternal border. Legs long; anterior femora especially elongate; tibiae compressed. Pronotum transverse, narrowed anteriorly; without anterior, transverse impression; posterior angles simple and acute; posterior margin not raised. Scutellum not raised. Elytra with humeri not prominent and not much broader than base of pronotum; without accessory striae; divergent and acute at apex. Hind wings (Fig. 16) without radial cross-vein; with closed anal cell; vein 1A interrupted between crossvein cu-a and wing margin; veins  $2A_1$  and  $2A_2$  fused; vein  $3A_1$  joining  $2A_3$ on posterior margin of anal cell distal to base of cell. Abdomen with 5 visible segments; segments 1-4 progressively shorter. Male genitalia very elongate and slender; basal piece longer than penis; penis longer than parameres. Female genitalia with coxites short and broad; styli short.

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